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TECHNICIAN ENGINEER

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Published for the Employees of the Broadcasting, Recording and Related Industries

INTERNATIONAL BROTHERHOOD OF ELECTRICAL WORKERS — AFL-CIO

A BACKWARD GLANCE

What was it like in communications and science 50 and 100 years ago? The items below culled from the electrical and broadcasting magazines of the Smithsonian Institution's Library in Washington, reveal a few surprises about "modern" technology, while exploring the byways of the industries that gave birth to broadcasting and recording.

50 YEARS AGO

Daylight Saving Time

Daylight Saving Time, that annual frustration which gets us started an hour earlier each spring, went into effect for the first time on March 31, 1918. In accordance with the Daylight Saving Act passed by Congress on March 19, 1918, the nation was to set back its clock one hour. Many citizens and communities did not comply.

50 YEARS AGO

Wireless at War

Radio became a factor in warfare for the first time during World War I. Wireless antennae sprang up like so many trellises of wire in France.

On November 6, 1918, it was a wireless message from Berlin which first asked Marshal Foch to name a place where German agents could come to accept the terms of armistice.

The following day, Foch answered, also by wireless, with instructions that German agents should present themselves at the French outpost by the Chimay-Fourmies-La Capelle-Guise Road to receive the terms for a cessation of fighting.

41 YEARS AGO

Coast-to-Coast

The year 1927 was a significant one in broadcasting history, for it was in that year that coast-to-coast hookups came into their own.

On January 1, 1927, the initial coast-to-coast hookup carried the New Years Day Rose Bowl football game from Pasadena, California, to radio listeners across the United States. In the 13th game of the Rose Bowl series, Stanford tied Alabama, 7 to 7.

Three weeks later, January 21, grand opera was hooked up coast-to-coast from the Chicago Civic Auditorium, with a performance of "Faust."

The following month, on February 22, Calvin Coolidge spoke on the first coast-to-coast Presidential broadcast. It was an address to commemorate the birth of the nation's first President.

70 YEARS AGO

A JUKE BOX developed by Thomas Edison is examined by two visitors to an industry exhibit. When Edison made application in 1877 for a "phonograph or speaking machine," the U.S. Patent Office could discover no previous record of this sort. After prototype models, Edison developed the one shown here.

The INTERNATIONAL BROTHERHOOD OF ELECTRICAL WORKERS
GORDON M. FREEMAN — International President
JOSEPH D. KEENAN — International Secretary
JEREMIAH P. SULLIVAN — International Treasurer
ALBERT O. HARDY — Editor, Technician-Engineer

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the cover

Twelve miscellaneous views of broadcasting activity form a pattern on our January cover to show the complexities of a still thriving industry, as we move into another year of work.

index

For the benefit of local unions needing such information in negotiations and planning, here are the latest figures for the cost-of-living index, compared with 1966: November, 1967—117.8; November, 1966—114.6.

commentary

"Congress recently reinstituted the seven per cent tax write-off for corporations expanding operations. Union members are in favor of anything that contributes to greater employment but, at the same time, they look with a fishy eye on tax relief measures that fail to take wage and salary workers also into account.

"In an era of spiraling inflation and growing tax loads—federal, state and city—the "little man" generally is the forgotten man. And much of the blame, unfortunately, can be traced to individual apathy. How many of us ever take pen in hand to write to our senators or representatives to let them know where we stand on matters affecting our pocketbooks? Taxation today is taking bigger and bigger bites from our purchasing power, with the wage and salary earner carrying proportionately the biggest burden.

"Recently Senator Vance Hartke, Indiana Democrat, introduced a bill in the Senate to boost the individual tax exemption to $1,000 from the present $600. A similar bill has been introduced in the House by Congressman George Rhodes of Pennsylvania.

"Introduction of these measures is a welcome step in the right direction and should have the support of every wage and salary earner."

—Howard Coughlin, President, O.P.E.I.U., in *White Collar*

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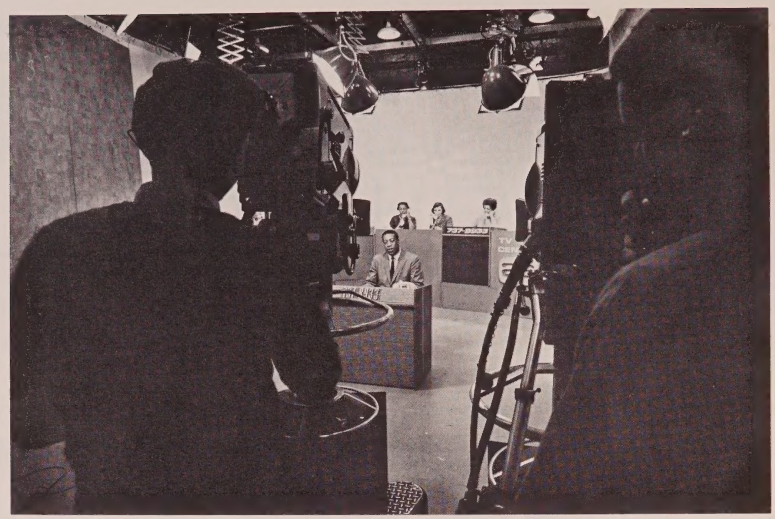


TV AIDS JOB HUNTERS

Public service programming of available jobs for unemployed workers fills community need

WETA, WASHINGTON, D. C.—Channel 26 in the nation's capital conducts a lively three-nights-a-week clearing house for job hunters and potential employers. Producer of the WETA show is Mrs. Carolyn Nichols, left, above. Able anchor man for the show is Harland Randolph, Executive Assistant

to the President of the Federal City College, shown above, center, interviewing a young man who was successful in finding a job through the Channel 26 "TV Job Center" facilities. Phones began ringing minutes after "TV Job Center" went on the air for the first time, November 20.

WBBM-TV, Chicago—'Opportunity Line'

■ James Seaberry was 20 years old, a grammar school dropout, married, a father and *unemployed* . . . That last descriptive word loomed large for Seaberry until he took time out one recent Saturday afternoon to listen to WBBM-TV's "Opportunity Line."

From inspiration and a lead obtained on the Channel 2 show, Seaberry obtained a job as a hide trimmer at a Chicago hide processing plant.

A young high school graduate of Silver Spring, Maryland, carries a 1-A draft card, but he needed a job. After several possible employers turned him down because of his draft status, he turned to "TV Job Center," a program aired by WETA, Channel 26, in Washington, D.C. Through counseling and leads obtained from "resource people" on the show, he now has a job with a Federal agency.

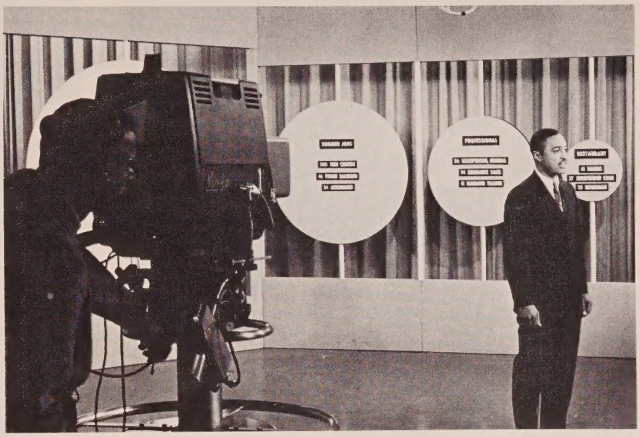
These are only two of thousands of "success" stories reported by more than a dozen television stations across the nation now presenting job placement shows of one kind or another.

It probably started with WBBM-TV's weekly show in Chicago, last June. WTMJ-TV, Milwaukee, Wisc., launched a similar show in October. WETA, Washington, produced a panel of eight on-the-air "resource people" (job counselors, employment agency representatives, etc.) and got underway in November, with the blessings of Vice President Hubert Humphrey and Mayor Walter Washington.

Among stations planning to launch similar shows this year are KPIX-TV, Portland, Oregon; WJW-TV, Cleveland, Ohio; WLAC-TV, Nashville, Tennessee; KOOL-TV, Phoenix, Arizona. *Variety* reported January 9 that a total of 19 stations have put similar shows on the air or are planning to do so.

Aimed particularly at the so-called "hard core unemployed" in city ghettos, many of the key people on camera in the various shows are able, articulate Negroes. Stations make a definite effort to balance programs with regard to ethnic minorities and prejudicial "type casting". The shows run the gamut — Puerto Ricans, Indians, Negroes, male, female, skilled and unskilled.

They add a human element to job hunting which a newspaper's classified advertising columns could never offer and seem to be one dynamic answer to organized labor's perennial struggle for more employment opportunities for all.



"The Opportunity Line" is a weekly half-hour series produced by WBBM-TV, which premiered last June 10 and has been running regularly since. Host Bill Lowry, a 32-year-old Negro, shown above, is personnel director for the Container Division of the Inland Steel Corporation and an active participant in community affairs. Lowry began reading a list of job openings in the Windy City every Saturday afternoon and encouraged viewers to ring the station. Of some 18,000 who called in the first few weeks, more than 1700 found work ranging from a high-school dropout now employed as a punch-press operater at a tannery to a University of Illinois sophomore who filled a summer job at a publishing company.

One facet of "Opportunity Line" is an interview between a guest employment counselor from the Illinois State Employment Service and three job applicants. The applicants are selected because of the universality of their problems. They may be dropouts, handicapped, veterans, or older people trying to find employment. Whatever their problem, the point of the interview is to have the audience identify or relate to the situation. . . . A third element is the "success" story—a discussion with someone who has found a job via "Opportunity Line," with emphasis on practical tips on getting a job.

WTMJ-TV, Milwaukee

'Job Opportunity Showcase'

The Milwaukee Journal station, WTMJ-TV, launched "Job Opportunity Showcase" on October 21. The show is presented in cooperation with the Greater Milwaukee Employment Development Committee. Co-hosts are Harold Mason of the station and Jimmy Johnson of the Wisconsin State Employment Service, both shown at right at the show's "Job Line Board". For the first three months the job interview features of the show were sandwiched among other elements of a two-hour program, the bulk of which featured movie entertainment. Starting this month, the format was changed to a half-hour, with performances by live talent replacing movies.

Harold Mason talks with two representatives of the Wisconsin State Employment Service, at right. Each week the co-hosts chat informally with personnel directors, business executives, representatives of government agencies, and others about job availabilities.

Mason and Johnson discuss hiring methods and job applicant evaluations with a representative of a Milwaukee firm. Persons interested in jobs described are asked to call a phone number for further information, job referrals, and job counseling. Thus far, the show has produced nearly 2,500 calls and about 600 job referrals.

ILO Group Calls for More Use Of Radio-TV in Workers' Education

A call for more use of radio and television in workers' education has been made by a working group of experts assembled in Geneva, Switzerland, by the International Labor Organization.

Trade union organizations must make an "adjustment of their educational efforts" to take full advantage of the new electronic age, said a final report of the working group released December 12.

"Labor educators increasingly recognize that their traditional methods are not enough" the report said. "Modern technology offers them unprecedented opportunities particularly for teaching large numbers of workers more rapidly than heretofore."

Nineteen participants from 12 nations attended the meeting, the first to link radio and television with workers' education on an international scale.

The report noted that use of radio and TV by trade unions and labor educators has generally been "occasional, infrequent and not always adapted to the nature and capabilities of the media."

"Labor educators need to know more about these mass media and how to use them," the group decided unanimously.

This is true especially because trade unions are increasingly taking important roles in the social and economic development of their countries, it said.

The experts pointed out that radio and television can be particularly important in developing nations, where traditional methods are hampered by a low literacy rate.

It works both ways, too, said the experts; not only are the electronic media important to labor, but "Labor education is important to mass media because workers and trade unions are important to modern societies."

The experts gave a prominent place in their report to an analysis and a warning:

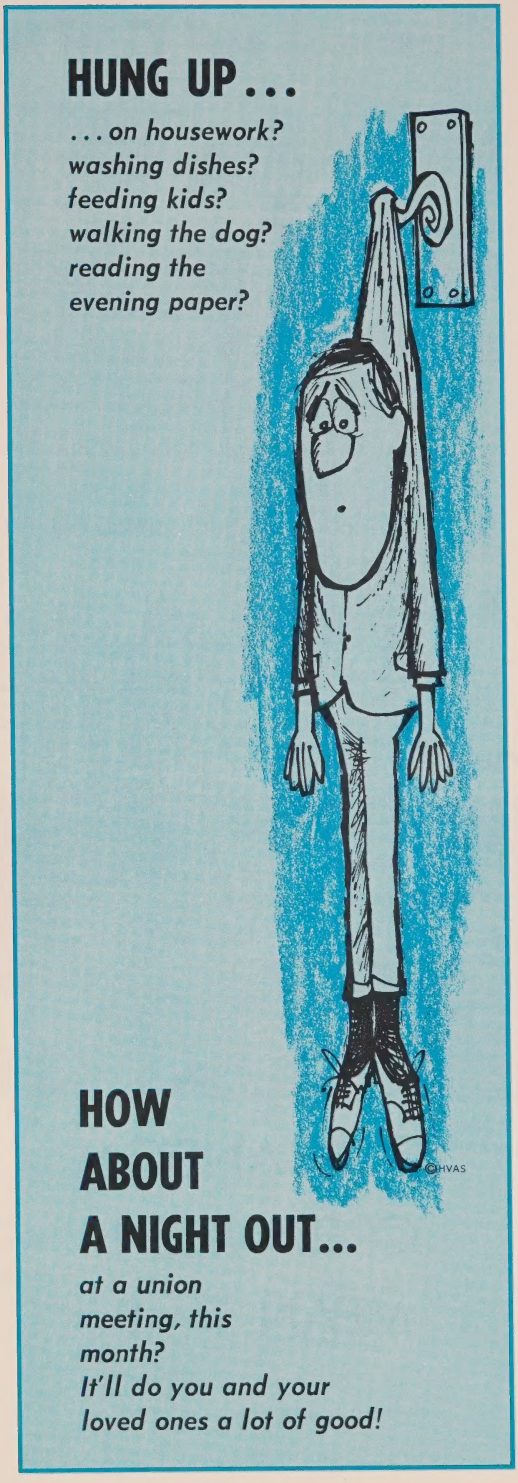
"The power of mass communications media grips the developed and developing countries alike. It is transforming habits, attitudes and thinking among all sectors of society, not the least of which are the workers and their families. Its pervasive influence enters into every home where there is a receiver, it reaches even the masses of illiterates untouched by the written word. . . .

"But radio and television facilities are no more than sophisticated machines. They can be only as effective as the program content poured into them, and only as educational as the ideas transmitted through them.

"They can be used to inform, to educate and to entertain but, if improperly used, they can stifle truth, distort ideas and destroy initiative until no creative effort survives in a cultural wasteland."

The experts' report will be sent for consideration to the Governing Body of the International Labor Organization, which will meet next February. It will also receive world-wide distribution to interested organizations.

John Sessions, Department of Education, AFL-CIO, participated from the United States.



BRITAIN TO ABANDON GREENWICH MEAN TIME

THE LAST SECONDS are ticking away for Greenwich Mean Time. Britain plans to conform to European time on February 18, 1968, by advancing clocks one hour.

In effect, Britons will adopt year-round daylight saving time. They've regularly set clocks ahead each summer just as in the United States.

The prime meridian at the old Greenwich Observatory near London will continue to serve as the world standard for precise measurement of longitude and time, the National Geographic Society says.

A royal decree by King Charles II established the Greenwich Observatory in 1675. The site has served as England's prime meridian since 1800.

Ship captains visiting London once sent their chronometers to Greenwich to be set by telescopic observation of the stars. After 1833, seamen on the Thames received a kind of curb service. A five-foot-wide ball was fixed on a pole above the observatory; when the ball dropped, the official time was exactly 1 p.m.

The innovation proved so popular that several other time balls were put up on the coast for ship navigators, and later synchronized by telegraph from Greenwich.

Until the late 1800's, however, Paris, Washington, and other world capitals independently marked a zero meridian in their own countries. Many peoples, Americans especially, still regarded local or sun time as the only true way to tell time.

The babel of clashing clocks drove rail travelers to distraction. Between Maine and California, a passenger had to change his watch 20 or 30 times.

One contemporary account said, "The people of Kansas City never did have accurate information on the arrival and departure of trains, except as was gained by going to the edge of the hill and looking down on the railway station."

More and more people complained about the lack of a uniform time system, but nobody did anything about it until the railroads blew the whistle. The General Time Convention adopted by railroads on October 11, 1883, established the four standard time zones—Eastern, Central, Mountain, and Pacific—in the United States.

Public reaction to the change ranged from enthusiasm to belligerent opposition. An Indianapolis newspaper muttered, "People will have to marry by railroad time and die by railroad time."

But a New York paper countered, "The man who goes to church in New York today will hug himself with delight to find that the noon service has been curtailed to the extent of nearly four minutes, while every old maid on Beacon Hill, in Boston, will rejoice tonight to discover that she is younger by almost 16 minutes."

American ingenuity was vastly admired, and representatives of 25 countries attending the Washington Meridian Conference in 1884 agreed upon Greenwich as the world's official marker for the prime meridian (zero degrees, zero minutes, zero seconds).

The laying of the transatlantic cables assured swift transmission of time signals, and linked the hemispheres together in a harmony of accurate time.

Editing and Control Equipment for TV Tape Recorders

■ Split-second editing and control of video tape by means of coded time signals is now possible by means of equipment recently marketed by a West Coast firm. To our knowledge the "On Time" unit manufactured by Electronic Engineering Co., Santa Ana, Calif., shown on this page and the one following is the first of a kind. It locates scenes at high speed, forward or reverse, stops or cues at any preselected time, electronically splices, and synchronizes recorders. Installation of the "On Time" control system to units such as the VR-2000 console is simple. Interconnections are made with existing connectors or terminal boards. The monitor switch panel of the VR-2000 is removed and replaced by the ECCO 901 Control Panel.

To locate a scene

Set the switches to the STOP time. Start the VTR in fast forward or rewind. Finding the tape location is automatic — ready for playback or editing.

To edit

Set the switches to the desired edit START and STOP times. Select the type of edit required. The electronic edit option will produce a clean accurate splice at the pre-set times. Very little cutting of tape will ever be required.

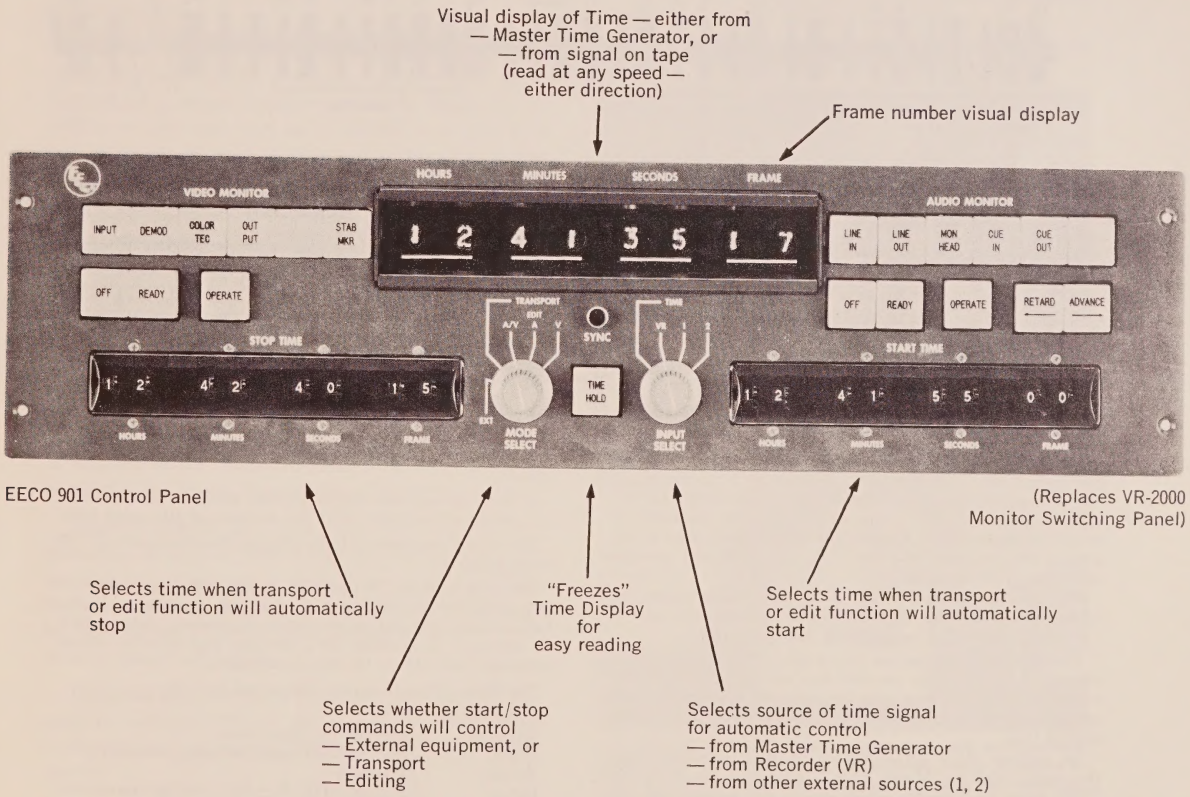
Control external equipment

Set the switches to the desired START and STOP times. Set the Mode Switch to the EXTERNAL position. At the pre-set time the equipment will start or stop.

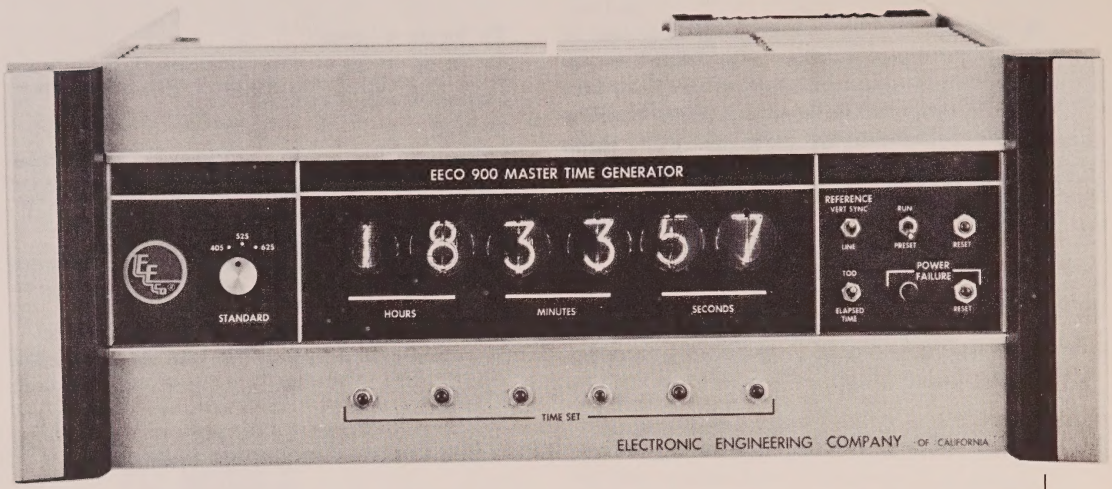
Automatically start recorders in frame sync

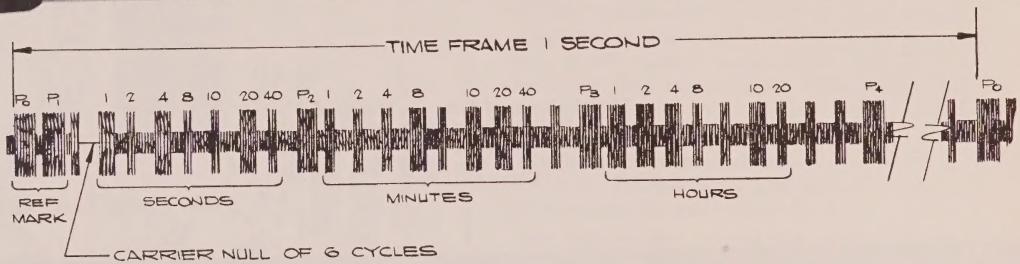
Cue each recorder to the same time. Start all machines. The Automatic Sync option will synchronize all machines to the same frame.

The EECO 901 Control Panel and EECO 902 Control Electronics Chassis



The EECO 900 Master Time Generator

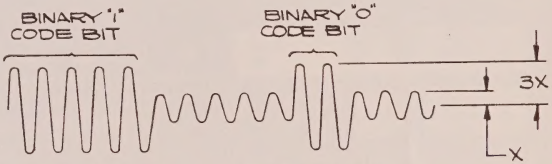



TIME FRAME 1 SECOND
P0 P1 1 2 4 8 10 20 40 P2 1 2 4 8 10 20 40 P3 1 2 4 8 10 20 P4 P0
REF MARK
SECONDS
MINUTES
HOURS
CARRIER NULL OF 6 CYCLES

TIME CODE SEQUENCE

P_0 and P_1 are beginning reference marks.
P_1, P_2, P_3 and P_4 are digit identifiers.

TIME CODE WAVESHAPE



CODE MODULATION PATTERN
CARRIER FREQUENCY IS 599.4 OR 600Hz

The EECO 900 Master Time Generator provides the time code which is recorded on the video or audio tapes for later editing and control use. The time code is recorded as a modulated carrier in which the code bits are defined by an increase in modulation level, and the bit weighting is defined by the width. As shown in the waveform diagram, the code is comprised by beginning reference mark followed by the time in seconds, minutes, and hours in BCD coding.

The carrier frequency is ten times the vertical frame rate (599.4, 600, or 500 Hz, depending on the standard in use).

The code bit rate is one-tenth the carrier frequency.

The Master Time Generator can be set to "clock" time (time-of-day) or may be set to zero and used as an elapsed time generator. In the elapsed time mode the generator is started one minute early, recycles to zero after one minute and then accumulates elapsed time.

An external RUN/HOLD control input is provided. Using this control with the Master Time Generator in the ELAPSED TIME mode the generator can be started and stopped remotely.

Time can be referenced to the power line frequency, like on an electric clock, or can be referenced to an external one pulse-per-second standard. An optional internal timing fork or precision quartz crystal reference can be supplied for installations, such as mobile units, where the line frequency is not accurately controlled.

A Power Failure indicator is provided which shows any power line outage which might affect the accuracy of the coded time.

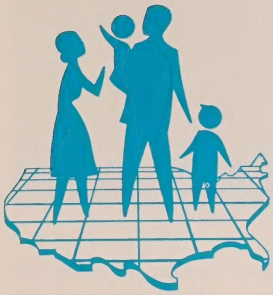
The output impedance of the Master Time Generator is 150 ohms, balanced.

The output into a 150 ohm load is adjustable from 0.25 to 5 volts peak-to-peak (measured at the high modulation level). Taps are also provided on the output transformer which permit the output to be modified for a 600 ohm load with the output adjustable from 0.5 to 10 volts peak-to-peak.

The Master Time Generator dimensions are:

Panel height:	7″
Width:	Standard 19″ rack mount
Depth:	17½″ (behind panel including connectors)
Weight:	34 pounds
Power:	0.6 amps at 117 V ± 10%, 60 Hz (convertible to 220 V by changing connections on a terminal board)

Tilting chassis slides are provided.



Changes in Social Security

Latest Congressional Act Affects Clergy, Servicemen, Working Women, and Others

Just before the deadline, January 2, President Lyndon Johnson signed the Social Security Bill of 1967. The bill fell short of what organized labor hoped and campaigned for, but it did offer these encouraging advances:

BENEFIT INCREASE of at least 13% for all persons now receiving social security cash benefits. The increase is automatic and will be paid early in March.

NEW TAX LIMIT—The amount of annual earnings subject to the social security tax has been increased from $6600 to $7300 effective January 1, 1968. The tax rate for 1968 remains the same, 4.4% for the worker and the employer.

RETIREMENT EARNINGS—A change in the retirement test whereby a worker can now earn more and still get a benefit check every month. Beginning in 1968 a worker can earn up to $1680 in a year and receive benefits all year. Earnings over this amount can result in a loss of some benefits unless the worker is age 72 or older.

DEPENDENT CHILDREN of a woman worker can now qualify for benefits payable in March if the worker was fully or currently insured at time of retirement, disability or death.

CLERGYMEN will now be covered under social security automatically unless they sign a special statement that they are conscientiously opposed or opposed on religious grounds. This does not apply to members of religious orders who have taken vows of poverty and is effective for taxable years ending after 1967.

SERVICEMEN on active duty will have greater protection starting in 1968. Under the old law only military base pay was counted toward determining benefits. Now, an additional amount of up to $100 a month will be automatically added to base pay to give credit for the value of meals and lodging.

DISABILITY—Disabled widows and disabled dependent widowers of workers insured at the time of death may now qualify for reduced benefits as early as age 50.

OTHER DISABILITY—Workers disabled before age 31 may now qualify for benefits on the basis of a more liberal work test, that is, they will need fewer quarters of work to qualify.

MEDICARE—Persons enrolled under the supplemental medical insurance may now be reimbursed for medical bills on the basis of an itemized bill.

TIME LIMITATION—The time limitation on filing a claim for medical insurance will expire on March 31, 1968 for medical bills incurred in July-September 1966.

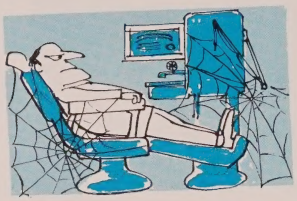
For additional information and leaflets on these and other important changes in the social security act phone or visit your nearest social security office.

SMILE, YOU'RE ON CAMERA

Closed-circuit "spy" cameras, mounted and grill-guarded at the top of the photo above, keep three pretty picketers in Vancouver, B.C., under surveillance. The three are members of the American Newspaper Guild, and they were participating in a weekend strike, with firm craft union support, which helped to produce raises of up to $45 a week. (PAI Photo)

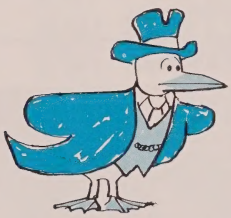
THE LABOR-MANAGEMENT WHIRL

As reported by Les Finnegan in CAVIL-CADE, *distributed by* Press Associates, Inc.



• *IN WASHINGTON, D.C., the nation's organized dentists, attending the 108th annual meeting of the American Dental Ass'n, were told they might be wise to take a leaf from trade unionism's book and charge by the hour instead of by the job. Dr. Theodore R. Oldenburg, of Chapel Hill, N.C., said that if all dentists charged $20-an-hour it would enable them to achieve the national net income level for their profession. But eyebrows shot upward when Dr. Oldenburg concluded with the statement, "The goal for dentistry should be to prevent dental disease so that one day there should be no need for dentists."*

• *IN CINCINNATI, OHIO, the Railway Clerk, newspaper of the Brotherhood of Railway Clerks, reported that "Nowadays colleges are emphasizing education. One university has gotten so strict it won't give a football player his letter unless he can tell which one it is."*



• *IN WASHINGTON, D.C., Congressman Elmer J. Holland, a longtime member of the United Steelworkers, AFL-CIO, became thoroughly irked by the childish behavior of his colleagues who in a fit of pique, imposed a payless payday on thousands of employees of the anti-poverty program. What's good for the goose is good for the gander, concluded union member Holland as he introduced a resolution that would automatically impose payless paydays on members of Congress whenever members of Congress cut off the pay of any group of Federal employees. The House of Representatives soon got the point, and two weeks later all OEO employees got paid in full.*

• *IN BUENOS AIRES, ARGENTINA, Union brewery workers at the Quilmes Brewery boasted of having the world's coldest bottle of beer. The Argentine Navy recently presented the unionists with a bottle of beer discovered in a boat which had been abandoned in an Antarctic ice pack by the French explorer Jean Baptiste Charcot in 1904.*

• *IN LAUREL, MD., Miss Kathy Kusner, a U.S. equestrian champion, threw consternation into the ranks of the staid Maryland Racing Commission by applying for a jockey's license. A sure bet for the 1968 Olympic Team, Miss Kusner was denied a racing license when she said she wouldn't accept any winnings because she didn't intend to lose her amateur standing. But the Jockeys' Guild (equivalent of a riders' union) pointed out that there has never been any provision in racing for amateur participation. However, Miss Kusner studied the racetrack rules and the Jockeys' Guild constitution and discovered that while jockeys' fees are carefully regulated there is no rule requiring a jockey to accept a fee for riding. It was—for the time being at least—a dead heat.*

• *IN ST. PETERSBURG, FLA., Saunders C. Catlin, a retired Canadian union leader, told an audience of retirees: "Over half the people in unions today are 25 years of age or less. These youngsters don't know what a depression is, never used a ration coupon, never had to stand in a breadline, never rode in a freight car, never cashed a relief check, could not describe an ice box, would not know how to light a kerosene lamp, and couldn't put a patch on an innertube. Do you think they're ready to take over the labor movement?"*

Stations with IBEW Agreements 28 Years Ago

O. M. T. (Old Man Time) browsed through the files of the International Office recently, as he is wont to do at year's end, and turned up an interesting but dusty document. This is a list of radio (no TV then, Junior) stations with IBEW agreements as of January 19, 1940.

KXOK	Columbia, Mo.
KFRU	Columbia, Mo.
KMOX	St. Louis, Mo.
XSD	St. Louis, Mo.
WIL	St. Louis, Mo.
KWK	St. Louis, Mo.
WEW	St. Louis, Mo.
WTMV	E. St. Louis, Ill.
WHK	Cleveland, Ohio
KFWB	Hollywood, Calif.
KFOX	Long Beach, Calif.
KGW	Portland, Ore.
KEX	Portland, Ore.
WOAI	San Antonio, Tex.
KRSC	Seattle, Wash.
WSAY	Rochester, N.Y.
WJAR	Providence, R.I.
KARM	Fresno, Calif.
KTAT	Fort Worth, Tex.
WGN	Chicago, Ill.
WCFL	Chicago, Ill.
WJJD	Chicago, Ill.
WIND	Chicago, Ill.
WOC	Davenport, Iowa
WHBF	Rock Island, Ill.
WIBA	Madison, Wis.
KSFO	San Francisco, Calif.
KYA	San Francisco, Calif.
KQW	San Jose, Calif.
WSGN	Birmingham, Ala.
WBRC	Birmingham, Ala.
WAPI	Birmingham, Ala.
WDGY	Minneapolis, Minn.
WMIN	Minneapolis; Minn.
WBT	Charlotte, N.C.
WEEI	Boston, Mass.
WCCO	Minneapolis, Minn.
WKRC	Cincinnati, Ohio
KNX	Los Angeles, Calif.
WJRD	Tuscaloosa, Ala.
WINS	New York, N.Y.
WSPD	Toledo, Ohio
KOH	Reno, Nev.
KFBK	Sacramento, Calif.
KMJ	Fresno, Calif.
WAAW	Omaha, Neb.
KFOR	Lincoln, Neb.
KFAB	Omaha, Neb.
KOIL	Omaha, Neb.
KOWH	Omaha, Neb.
KOMO	Seattle, Wash.
KJR	Seattle, Wash.
KIRO	Seattle, Wash.
KOL	Seattle, Wash.
KXA	Seattle, Wash.
WDOD	Chattanooga, Tenn.
KVI	Tacoma, Wash.
WEBC	Duluth, Minn.
WMFG	Hibbing, Minn.
WHLB	Virginia, Minn.
WLW	Cincinnati, Ohio
WSAI	Cincinnati, Ohio
WLWO	Cincinnati, Ohio
WQXR	New York, N.Y.
WHFC	Cicero, Ill.
WJBC	Bloomington, Ill.
WGL	Fort Wayne, Ind.
WOWO	Fort Wayne, Ind.
WTAG	Worcester, Mass.
KOY	Phoenix, Ariz.
KFPY	Spokane, Wash.
KROW	Oakland, Calif.
WTCN	Minneapolis, Minn.
KROY	Sacramento, Calif.
KSO	Des Moines, Iowa
KRNT	Des Moines, Iowa
KGLO	Mason City, Iowa
WMT	Cedar Rapids, Iowa
KGVO	Missoula, Mont.
KGBX	Springfield, Mo.
KWTO	Springfield, Mo.
WDNC	Durham, N.C.
KGDM	Stockton, Calif.
WGST	Atlanta, Ga.
WAPO	Chattanooga, Tenn.
WEVD	New York, N.Y.
WFBM	Indianapolis, Ind.
WLLH	Lowell, Mass.
KWG	Stockton, Calif.
KERN	Bakersfield, Calif.
WJSV	Washington, D.C.
WABC	New York, N.Y.
KSTP	St. Paul, Minn.
WHP	Harrisburg, Pa.
KHQ	Spokane, Wash.
KFIO	Spokane, Wash.
KPQ	Wenatchee, Wash.
WKBN	Youngstown, Ohio
KOMA	Oklahoma City, Okla.
WSBC	Chicago, Ill.
WEDC	Chicago, Ill.
WBBM	Chicago, Ill.
WDWS	Champaign, Ill.
WCPO	Cincinnati, Ohio
KVOS	Bellingham, Wash.
KGA	Spokane, Wash.
KXRO	Aberdeen, Wash.
KUJ	Walla Walla, Wash.
WHKC	Columbus, Ohio
WLOL	Minneapolis, Minn.
WCBD	Chicago, Ill.
KRLC	Lewiston, Idaho

Virtually all of these stations are still on the air. Some of the call letters have been changed: WABC to WCBS, KQW to KCBS, KROW to KABL, WJSV to WTOP, WCBD to WAIT, and so on. Many have been sold and even re-sold, some several times, and a great number have increased power. Quite a few on this list have gone from 250 watts to 5 kw, a number from lower power to 50 kw. The passing of 28 years has included many changes in personnel, but from time to time we are reminded that there are some technicians still working at such stations who were working there in 1940—or earlier. A considerable number are on the IBEW pension list and are enjoying retirement, many of whom started in radio in the early 30's.

The Job Standstill

In terms of jobs the economy marked time in 1967. There was no progress in terms of reducing unemployment, and total employment gains were the smallest since 1963.

The Labor Dept.'s year-end review of the employment situation discloses that the actual number of unemployed was up slightly from a year earlier and that the rate at 3.8 percent of the labor force was unchanged from 1966.

Non-farm payroll employment showed a smaller increase than either 1966 or 1965 with nearly all of the rise concentrated in government, trade and miscellaneous services.

Manufacturing employment remained practically unchanged, with an increase of 150,000 compared to 1.1 million in 1966.

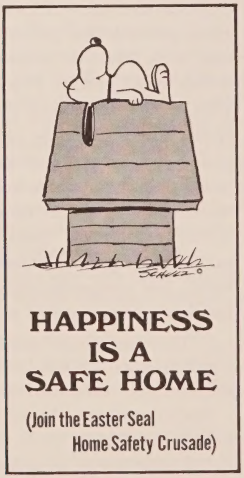
Hourly earnings also reflected the state of the economy—up 12 cents, but only 4 cents over 1966 in terms of real purchasing power.

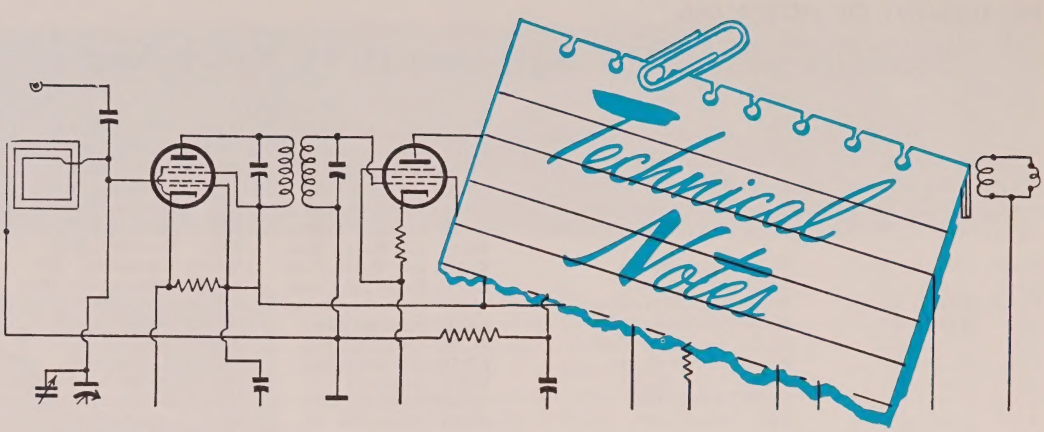
The 1967 workweek was below the 1966 and 1965 levels, adding further to the problems of earnings and purchasing power.

The no-progress year of 1967 brought to a standstill, then, a six-year trend in reduction of the unemployment rate. In 1961 the rate stood at 6.7 percent; two years later it was 5.7; in 1965 it dropped to 4.5 and the following year to 3.8.

The failure to improve on the 1966 performance stems primarily from the failure of Congress to adopt the necessary public policies and programs to assure continuing progress in reducing unemployment.

The second session of the 90th Congress will have the opportunity to redress this situation and vote up policies and programs that will give every American the opportunity of a decent job at a decent rate of pay. An unemployment rate stuck at 3.8 percent is not good enough.





FISHING WITH ELECTRODES

The feasibility of effective, relatively low-cost electronic fishing by which fish are attracted to electrodes placed in the water has been demonstrated at The University of Michigan.

The system, which involves lower power supplies than previously considered, may be particularly significant in the Great Lakes to control alewives.

Using a small pond and goldfish, U-M demonstrated the system at the 23rd annual National Electronics Conference and Exhibition in Chicago's International Amphitheatre last month. Two other projects of the Cooley Electronics Laboratory were exhibited.

The electronic fishing study is being done under a $12,000 research contract from the U. S. Bureau of Commercial Fisheries.

As planned, the system will make use of electrode screens operated from boats to sweep or herd fish progressively toward the mouth of a net or the intake of a fish pump.

Research engineer Irving W. Rozian said the system gives promise that power supplies of 5 to 10 kilowatts can be as effective in fresh water as previous methods which would require 50-kw supplies. A composite pulse with a 10 percent duty cycle, he said, has been shown in the laboratory to be just as effective as a solid pulse.

The low average power of the composite pulse used is expected to produce less fatigue of the fish, he said, while allowing longer range, lower operating costs, and lighter equipment. Because the high conductivity of salt water requires 100 times the power needed for fresh water, the composite pulse is even more important in holding average power to reasonable levels.

"Previous electrode arrays often created a strong field which stunned the fish before they got where you wanted them to go," said Rozian.

Such equipment, he added, had an effective range of only 10 to 20 feet while the equipment now being studied is effective up to several hundred feet.

"Authorities estimate that two or three times as many fish escape as are caught by conventional nets," said Rozian. "Proper electronic fishing can increase the catch by 100 to 200 percent. Further economic savings can be made by combining electronic fishing with the use of fish pumps for emptying trap nets."

An advantage of electronic fishing is that fish of a particular size or type can be selectively attracted while leaving out those not desired.

Thus, said Rozian, third-year alewives could be caught before they die on the beaches and a supply of smaller fish could be left to maintain the population and provide food for the coho salmon.

The U-M study should end this year with field studies in the Great Lakes and Tennessee Valley Authority lakes. Part of the project will also involve building prototype commercial power units and making tests in towing tanks and model basins to choose the best array of electrodes. After final tests, prototype designs should be available to commercial manufacturers by spring 1968.

The NEC exhibit of this and a project in the use of holography to study vibrations in three-dimensional objects is designed by the U-M to show the application of current electronic research to industry, education, and public service. The exhibits will be presented in slides.

"COMPANDOR" PRESSES, EXPANDS

While cables and satellites are used now on heavy communications traffic lines overseas, radio-telephone is still important on less-used routings. One of the devices found useful in making the conversations intelligible is a "compandor."

The "compandor" is a compressor-expander. It compresses the variations of a speaker's voice so his speech is at almost a constant level. That means that it all may be amplified the same amount and be loud enough to be heard over any electronic noise in the background. At the receiver end, the loudness range in the speaker's voice is expanded to its original level. The device reduces noise and fading during transmissions.

WALKING WITH ELECTRICITY..

A method of electrically making it possible for some paralyzed persons to walk has been proposed by Dr. Franklin F. Offner of Northwestern University and Dr. Wladimir Liberson of the Veterans Administration Hospital, Hines, Illinois.

The two scientists have been granted a patent on an electrical muscle stimulator. It works on two muscles which control the raising of the human toe from the ground in walking. A switch attached to the patient's heel causes an electric current to go to the intact muscles which are otherwise uncontrollable by the patient. When he puts his foot down again, the heel switch cuts off the stimulating current, relaxing the muscle.

The muscle stimulators have been used experimentally for a number of years, Dr. Offner said. Other scientists have conducted research in various approaches to the problem.

ULTRA-THIN SHIELDING MATERIAL

A new type of electromagnetic shielding material only 0.0074-inch thick which can be cut with ordinary scissors to protect transformers, tubes, relays, recording heads, magnetic tape reels and other sensitive components has been developed.

Manufactured in widths of 2, 4 and 12 inches by Magnetic Metals, Co., Camden, N.J., the material is simply cut to the desired shape, placed over the component and pressed into position.

NARCOTICS SNOOPER

A radioactive detector is being used by Swedish customs authorities to spot abnormal shapes in automobiles where narcotics could be hidden.

Radiation from the isotope, contained in a lead-lined detector, is reflected off the car body and measured by a receiver inside the instrument. If the radiation hits a foreign body hidden under a fender or in the fuel tank, for example, the detector reveals it.

Although the instrument cannot tell what the hidden object is, it does tell the customs officer where to look, the Swedish International Press Bureau reports.

HOW LONG IS A SECOND?

Putting aside poetical and other "subjective" assessments, one second of time is now defined in terms of induced atomic oscillation as "the duration of 9,192,631,770 periods of the radiation corresponding to the transition between two hyperfine levels of the fundamental state of an atom of cesium 133."

The definition was adopted at the recent 13th meeting of the General Conference on Weights and Measures.

Since 1900, a cumulative error of about 30 seconds has resulted from the standard method of defining a second as one 86,400th of a day; and this is why the new standard of measurement has been set up.

FCC ACTIONS

Current issues of the *Federal Register* contain official notices of Federal Communications Commissions actions of interest to our members. Matters currently in pending status before the Commission include the following:

* **EXPERIMENTAL PERIOD OF FM BROADCAST, STATIONS, Part 73—Radio Broadcast Services**

Report and Order. In the matter of amendment of § 73.262 of the Commission's rules with respect to the experimental period of FM Broadcast Stations, Docket No. 17660, RM-1140.

The Commission has before it for consideration its notice of proposed rule making, FCC 67-953 . . . concerning the period for experimental operation of FM broadcast stations. The notice was issued in response to a petition filed on April 25, 1967, RM-1140 . . . requesting both a longer daily experimental period for FM stations to test and maintain apparatus and to permit experimentation at other times, under certain limitations, for the improvement of the station's technical facilities.

* * *

In view of the foregoing: It is ordered, That effective January 22, 1968, § 73.262 of the Commission's rules is amended to read as shown below. It is further ordered, That this proceeding is terminated.

1. Section 73.262 is amended to read as follows: Section 73.262 Experimental operation.

(a) The period between 12 midnight and 6 a.m., prevailing local time, may be used for experimental purposes in testing and maintaining apparatus by testing and maintaining apparatus by the licensee of any FM broadcast station on its assigned frequency and not in excess of its authorized power, without specific authorization from the Commission.

(b) FM broadcast stations may (with prior notification to the Commission and the Engineer in Charge of the radio district in which the station is located) test, maintain, and adjust the apparatus at the station during other time periods; and may (upon informal application) conduct technical experimentation directed to the improvement of technical phases of operation during other time periods, and for such purposes may utilize a signal other than the standard FM signal, subject to the following conditions:

(1) That the licensee complies with the provisions of § 73.261 with regard to the minimum number of hours of operation.

(2) That emissions outside the authorized bandwidth shall comply with § 73.317(a) and that no interference is caused to the transmissions of other FM broadcast stations.

(3) No charges either direct or indirect shall be made by the licensee of an FM broadcast station for the production or transmission of programs when conducting technical experimentation.

STATION BREAKS

ELECTION WON IN DENVER

A recent balloting among station personnel at KBTR, Mullins AM station in Denver, Colo., resulted in 13 for IBEW, 3 for the American Federation of Radio and Television Artists, and 4 "no union." The victory for IBEW Local Union 1823 brings union representation not only to the station's technical personnel but to its announcers and newsmen as well.

The station features news and special events and is reported to have 12 fulltime newsmen handling its busy schedule.

Local Union 1823 already represents the technical personnel of KBTV, the station's TV affiliate.

KAISER COLOR EQUIPPED

Two Kaiser UHF stations, scheduled to go on the air early this year, will have RCA color equipment valued at $2,260,000, according to a recent company announcement.

A contract with RCA covers studio and transmitting equipment for WKBF-TV, Cleveland, O., and KBHK-TV, San Francisco. Each station has ordered three live color cameras, two color-TV film systems, two TR-70 high-band color-TV tape recorders, a master-control switching system, audio equipment, and a solid-state microwave system to link studio and transmitter sites.

Transmitting gear for each station includes a TTU-50C UHF transmitter and pylon-type broadcaster antennas. Remote-control equipment will enable the stations to operate the transmitters from the studio sites.

Kaiser hopes to create a live, interconnected television network by the fall of 1970. Once the two new UHFs are operating, Kaiser will have six TV stations on the air.

OLD ENGINEERING ADAGE

Technicians involved in installing new equipment or simply relocating new equipment at the studio or transmitter will appreciate this "old engineering folk saying" gleaned from the December issue of the University of Illinois *Engineering Outlook:*

"When the weight of the paperwork equals the weight of the equipment, the project is complete."

BACK TO THE CBS FOLD

The CBS Radio Network regained two 50 kw affiliates on January 1—WHAS, Louisville, Ky., and KWKH, Shreveport, La. The two stations have been ABC affiliates since leaving CBS Radio on July 4, 1959, in disagreement with the network's move to eliminate dollar compensation of affiliates. Dollar compensation has since been resumed by CBS Radio. WHAS employs members of Local 1286.

WCFL GRANTED LAST UHF

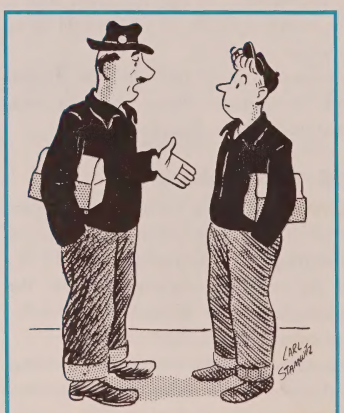
The Chicago AFL-CIO, which owns and operates radio station WCFL, has been granted a construction permit for WCFL-TV to operate on channel 38 of the ultra high frequency television band.

The Federal Communication Commission's board of review ruled 2-1 in favor of the Chicago federation over one other applicant. Channel 38 is the last of the 10 channels assigned to Chicago.

There were originally four applicants for the channel.

A spokesman for WCFL estimated that the new station would take $2 million and 18 months to build.

LAST LAUGH



"Believe me, son—being non-union these days is just following the line of least subsistence!"